National Institute of Environmental Health Sciences

Travelling and hunting in a changing Arctic: Assessing Inuit vulnerability to sea ice change in Igloolik, Nunavut

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Abstract:

The observations of community members and instrumental records indicate changes in sea ice around the Inuit community of Igloolik, in the Canadian territory of Nunavut. This paper characterizes local vulnerability to these changes, identifying who is vulnerable, to what stresses, and why, focusing on local and regional use of sea ice for the harvesting of renewable resources and travel. This analysis is coupled with instrumental and sea ice data to evaluate changing temperature/wind/sea ice trends over time, to complement local observations. We demonstrate the relationships between changing sea ice conditions/dynamics and harvesting activities (i.e. dangers and accessibility), with specific emphasis on ringed seal and walrus seasonal hunting, to illustrate current sea ice exposures that hunters are facing. Community members are adapting to such changes, as they have done for generations. However, current adaptive capacity is both enabled, and constrained, by social, cultural, and economic factors that manifest within the modern northern Hamlet. Enabling factors include the ability of hunters to manage or share the risks associated with sea ice travel, as well as through their flexibility in resource use, as facilitated by sophisticated local knowledge and land/navigational skills. Constraining factors include the erosion of land-based knowledge and skills, altered sharing networks, as well as financial and temporal limitations on travel/harvesting. The differential ability of community members to balance enabling and constraining factors, in relation to current exposures, comprises their level of vulnerability to sea ice change.

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Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Glacier/Snow Melt, Meteorological Factors, Temperature

Temperature: Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Arctic, Ocean/Coastal, Rural

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Non-U.S. North America

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: Canadian Inuit

Resource Type:

format or standard characteristic of resource

Research Article

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content